SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name: K-FLEX K-467

1.2 Relevant identified uses of the substance or mixture and uses advised against

Product category: PC1 Adhesives, sealants
Application of the substance / the mixture: Adhesives

1.3 Details of the supplier of the safety data sheet

Manufacturer/Supplier:
LISOLANTE K-FLEX S.p.A.
via Don Locatelli, 35 Roncello (MB) 20877 ITALY
Tel. +39 039 6824.1
e-mail: Kflex-Reach@isolante.com

Further information obtainable from: R&D Dept.

1.4 Emergency telephone number:

Tel. +39 039 68 24.1 (9.00 - 17.00)

ITALIA Centro Antiveneni Ospedale Niguarda "Ca' Granda" MILANO tel. 02/66101029; Fondazione Maugeri - Clinica del lavoro e della Riabilitazione PAVIA tel. 0382/24444; Centro Documentazione Tossicologica - Università degli Studi PADOVA tel. 049/8275078; Centro Antiveneni Istituto Scientifico "G. Gaslini" GENOVA tel. 010/5636245; Centro Antiveneni Azienda Ospedaliera "Careggi" FIRENZE tel. 055/4277328; Centro Antiveneni "Policlinico Gemelli" ROMA tel. 06/3054343; Centro Antiveneni Università degli Studi di Roma "La Sapienza" ROMA tel. 06/49970698; Centro Antiveneni Azienda Ospedaliera "A. Cardarelli" NAPOLI tel. 081/7472870; Centro antiveneni Azienda Ospedaliera Universitaria FOGGIA tel. 0881/731111

AUSTRIA Vergiftungsinformationszentrale +43 1 406 43 43
BELGIUM Centre Antipoisons-Antigifcentrum +32 3024 5245
BULGARIA National Toxicology Centre at National Clinical Toxicology Centre +359 2 9154 233
CROATIA Poison Control Centre Zagreb +385 1 2348342
CECH REPUBLIC Toxicological Information Centre +420224919 293
DENMARK Poison Information Centre +45 82 12 12 12
ESTONIA Estonian Poison Information Centre +372 626 93 90
FINLAND Finnish Poison Information Centre +358 9 471977
FRANCE Centre Antipoison et de Toxicovigilance de Angers +33 2 41 35 33 30
HUNGARY Health Toxicology Information Service +36 80 20 11 99
IRELAND Poison Information Centre of Ireland +353 1 809 2166
LATVIA Valsts Toksikologijas centres + 371 67042473
LITHUANIA Lithuania Poison Control and Information Bureau +370 5 236 20 52
NORGE Giftninformasjonen : 22 59 13 00 (døgnåpen)
PORTUGAL CIAV Centro de Informacao Antivenenos +351 808 250 143
SLOVAKIA National Toxicological Information Center +421 2 54 774 166
POLAND Informacja toksykologiczna w Polsce +48 42 631 47 24 (czynna 7:00-15:00)
SPAIN Instituto Nacional de Toxicología +34 136 20420

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

GHS02 flame
Flam. Liq. 2 H225 Highly flammable liquid and vapour.

GHS09 environment
Aquatic Chronic 2 H411 Toxic to aquatic life with long lasting effects.
Trade name: K-FLEX K-467

(Contd. of page 1)

2.2 Label elements
- Labelling according to Regulation (EC) No 1272/2008
The product is classified and labelled according to the CLP regulation.
- Hazard pictograms

GHS02 GHS07 GHS09

- Signal word Danger
- Hazard-determining components of labelling:
  Solvent naphtha (petroleum), hydrotreated light naphthenic; Hydrocarbons C6-C7 isoalkanes cyclics < 5% n-hexane (REACH Registered Name)
  Ethyl acetate
- Hazard statements
  H225 Highly flammable liquid and vapour.
  H319 Causes serious eye irritation.
  H336 May cause drowsiness or dizziness.
- Precautionary statements
  P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
  P240 Ground/bond container and receiving equipment.
  P241 Use explosion-proof electrical/ventilating/lighting equipment.
  P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
  P280 Wear protective gloves/protective clothing/eye protection/face protection.
  P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
  P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
  P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
  P312 Call a POISON CENTER/doctor if you feel unwell.
  P403+P233 Store in a well-ventilated place. Keep container tightly closed.
  P405 Store locked up.
  P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

- Additional information:
  Contains Rosin. May produce an allergic reaction.

2.3 Other hazards
- Results of PBT and vPvB assessment
- PBT: Not applicable.
- vPvB: Not applicable.

SECTION 3: Composition/information on ingredients

- 3.2 Chemical characterisation: Mixtures
- Description: Mixture of substances listed below with nonhazardous additions.
47.0.1

· Dangerous components:

| CAS: 92062-15-2 | Solvent naphtha (petroleum), hydrotreated light naphthenic: Hydrocarbons C6-C7 isoalkanes cyclics < 5% n-hexane (REACH Registered Name) | 40-60% |
| CAS: 141-78-6 | Ethyl acetate | 20-40% |
| CAS: 67-64-1 | Acetone | 5-15% |
| CAS: 64742-49-0 | Naphtha (petroleum), hydrotreated light: hydrocarbons C6 isoalkanes < 5% n-hexane (REACH Registered Name) | 5-15% |
| CAS: 8050-09-7 | Rosin | 0.1-0.5% |
| CAS: 1330-20-7 | Xylene (mix) | 0.05-0.2% |
| CAS: 100-41-4 | Ethylbenzene | 0.05-0.2% |
| 64742-49-0 | Naphtha (petroleum), hydrotreated light: hydrocarbons C6 isoalkanes < 5% n-hexane (REACH Registered Name) |

· Additional information: For the wording of the listed hazard phrases refer to section 16.

* SECTION 4: First aid measures

· 4.1 Description of first aid measures
  · After inhalation: Supply fresh air; consult doctor in case of complaints.
  · After skin contact: Generally the product does not irritate the skin.
  · After eye contact: Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
  · After swallowing: If symptoms persist consult doctor.

· 4.2 Most important symptoms and effects, both acute and delayed: No further relevant information available.

· 4.3 Indication of any immediate medical attention and special treatment needed: No further relevant information available.

* SECTION 5: Firefighting measures

· 5.1 Extinguishing media
  · Suitable extinguishing agents: CO2, sand, extinguishing powder. Do not use water.

· For safety reasons unsuitable extinguishing agents:
  · Water
    · Water with full jet

· 5.2 Special hazards arising from the substance or mixture: No further relevant information available.
SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Wear protective equipment. Keep unprotected persons away.

6.2 Environmental precautions:
Prevent seepage into sewage system, workpits and cellars.
Inform respective authorities in case of seepage into water course or sewage system.
Do not allow to enter sewers/ surface or ground water.

6.3 Methods and material for containment and cleaning up:
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Ensure adequate ventilation.
Do not flush with water or aqueous cleansing agents

6.4 Reference to other sections
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Ensure good ventilation/exhaustion at the workplace.

Information about fire - and explosion protection:
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.

7.2 Conditions for safe storage, including any incompatibilities
Storage:
Requirements to be met by storerooms and receptacles: Store only in the original receptacle.
Information about storage in one common storage facility: Not required.

Further information about storage conditions:
Keep receptacle tightly sealed.
Store in cool, dry conditions in well sealed receptacles.

7.3 Specific end use(s)
No further relevant information available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with limit values that require monitoring at the workplace:

<table>
<thead>
<tr>
<th>Chemical</th>
<th>WEL Short-term value</th>
<th>Long-term value</th>
</tr>
</thead>
<tbody>
<tr>
<td>141-78-6 Ethyl acetate</td>
<td>400 ppm</td>
<td>200 ppm</td>
</tr>
<tr>
<td>67-64-1 Acetone</td>
<td>3620 mg/m³, 1500 ppm</td>
<td>1210 mg/m³, 500 ppm</td>
</tr>
<tr>
<td>8050-09-7 Rosin</td>
<td>0.15 mg/m³</td>
<td>0.05 mg/m³</td>
</tr>
</tbody>
</table>
### 1330-20-7 xylene (mix)

| WEL | Short-term value: 441 mg/m³, 100 ppm  
| Long-term value: 220 mg/m³, 50 ppm  
| Sk; BMGV |

### 100-41-4 ethylbenzene

| WEL | Short-term value: 552 mg/m³, 125 ppm  
| Long-term value: 441 mg/m³, 100 ppm  
| Sk |

### DNELs

<table>
<thead>
<tr>
<th>Substance</th>
<th>Dermal Long term-Systemic effect</th>
<th>Inhalative Long term-Systemic effect</th>
<th>Dermal Long term-Local effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>141-78-6 Ethyl acetate</td>
<td></td>
<td>63 mg/kg (workers)</td>
<td>1,468 mg/m³ (workers)</td>
</tr>
<tr>
<td>67-64-1 Acetone</td>
<td></td>
<td>186 mg/kg (workers)</td>
<td>2,420 mg/m³ (workers)</td>
</tr>
</tbody>
</table>

### PNECs

<table>
<thead>
<tr>
<th>Substance</th>
<th>fresh water</th>
<th>marine water</th>
<th>Intermittent release</th>
</tr>
</thead>
<tbody>
<tr>
<td>141-78-6 Ethyl acetate</td>
<td>0.26 mg/l (frs)</td>
<td>26 mg/l (mar)</td>
<td>26 mg/l (water)</td>
</tr>
<tr>
<td>67-64-1 Acetone</td>
<td></td>
<td></td>
<td>650 mg/l (water)</td>
</tr>
</tbody>
</table>

### Ingredients with biological limit values:

<table>
<thead>
<tr>
<th>Substance</th>
<th>BMGV</th>
<th>Medium</th>
<th>Sampling time</th>
<th>Parameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>1330-20-7 xylene (mix)</td>
<td>650 mmol/mol creatinine</td>
<td>urine</td>
<td>post shift</td>
<td>methyl hippuric acid</td>
</tr>
</tbody>
</table>

### 8.2 Exposure controls

- **Personal protective equipment:**
- **General protective and hygienic measures:**
  - Keep away from foodstuffs, beverages and feed.
  - Immediately remove all soiled and contaminated clothing.
  - Wash hands before breaks and at the end of work.
  - Do not inhale gases / fumes / aerosols.
  - Avoid contact with the eyes.

---

Trade name: K-FLEX K-467
Avoid contact with the eyes and skin.

- **Respiratory protection:** Filter A/P2
- **Protection of hands:**
  - Protective gloves
  - Rubber gloves
  - **Material of gloves** Butyl rubber, BR
  - **Penetration time of glove material**
    For the mixture of chemicals mentioned below the penetration time has to be at least 240 minutes (Permeation according to EN 374 Part 3: Level 5).
    The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Eye protection:**
  - Tightly sealed goggles

---

**SECTION 9: Physical and chemical properties**

- **9.1 Information on basic physical and chemical properties**
  - **General Information**
    - **Appearance:**
      - Form: Fluid
      - Colour: Light orange colour
      - Odour: Characteristic
      - Odour threshold: Not determined.
    - **pH-value:** Not determined.
    - **Change in condition**
      - Melting point/freezing point: Undetermined.
      - Initial boiling point and boiling range: 36 °C
    - **Flash point:** -20 °C
    - **Flammability (solid, gas):** Not applicable.
    - **Ignition temperature:** >200 °C
    - **Decomposition temperature:** Not determined.
    - **Auto-ignition temperature:** Product is not selfigniting.
    - **Explosion properties:** Product is not explosive. However, formation of explosive air/vapour mixtures are possible.
      - **Explosion limits:**
        - Lower: 1.2 Vol %
        - Upper: 11.5 Vol %
      - **Vapour pressure at 20 °C:** 110 hPa
      - **Density at 20 °C:** 0.87 g/cm³
      - **Relative density** Not determined.
      - **Vapour density** Not determined.
      - **Evaporation rate** Not determined.
47.0.1 Solubility in / Miscibility with water: Insoluble.

Partition coefficient: n-octanol/water: Not determined.

Viscosity:
Dynamic at 20 °C: 320 mPas
Kinematic: Not determined.

Solvent content:
Organic solvents: 80.8 %
Water: 0.0 %
VOC (EU): 703.5 g/l

Solids content: 19.2 %

9.2 Other information
No further relevant information available.

SECTION 10: Stability and reactivity

10.1 Reactivity No further relevant information available.
10.2 Chemical stability
Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.

10.3 Possibility of hazardous reactions No dangerous reactions known.
10.4 Conditions to avoid No further relevant information available.

10.5 Incompatible materials: No further relevant information available.
10.6 Hazardous decomposition products: No dangerous decomposition products known.

SECTION 11: Toxicological information

11.1 Information on toxicological effects
Acute toxicity Based on available data, the classification criteria are not met.

LD/LC50 values relevant for classification:

**141-78-6 Ethyl acetate**
Oral LD50 4,935 mg/kg (rabbit)
Inhalative LC50/4 h 1,600 mg/l (rat)

**67-64-1 Acetone**
Oral LD50 5,800 mg/kg (rat)
Dermal LD50 20,000 mg/kg (rabbit)

**128-37-0 Butylated hydroxytoluene**
Oral LD50 890 mg/kg (rat)

**1330-20-7 xylene (mix)**
Oral LD50 8,700 mg/kg (rat)
Dermal LD50 2,000 mg/kg (rabbit)
Inhalative LC50/4 h 6,350 mg/l (rat)

**100-41-4 ethylbenzene**
Oral LD50 3,500 mg/kg (rat)
Dermal LD50 17,800 mg/kg (rabbit)

Primary irritant effect:
Skin corrosion/irritation Based on available data, the classification criteria are not met.
Serious eye damage/irritation
Causes serious eye irritation.
Respiratory or skin sensitisation Based on available data, the classification criteria are not met.
CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)  
Germ cell mutagenicity Based on available data, the classification criteria are not met.  
Carcinogenicity Based on available data, the classification criteria are not met.  
Reproductive toxicity Based on available data, the classification criteria are not met.  
STOT-single exposure  
May cause drowsiness or dizziness.  
STOT-repeated exposure Based on available data, the classification criteria are not met.  
Aspiration hazard Based on available data, the classification criteria are not met.

SECTION 12: Ecological information  
12.1 Toxicity  
Aquatic toxicity:  
141-78-6 Ethyl acetate  
EC50/48h 165,000 μg/l (daphnia magna)  
67-64-1 Acetone  
EC50/48h 8,800,000 μg/l (daphnia magna)  
12.2 Persistence and degradability No further relevant information available.  
12.3 Bioaccumulative potential  
141-78-6 Ethyl acetate  
LogPow 3.0  
64742-49-0 Naphtha (petroleum), hydrotreated light; hydrocarbons C6 isoalkanes < 5% n-hexane (REACH Registered Name)  
LogPow 3.6  
12.4 Mobility in soil No further relevant information available.  
Ecotoxicological effects:  
Remark: Toxic for fish  
Additional ecological information:  
General notes:  
Also poisonous for fish and plankton in water bodies.  
Toxic for aquatic organisms  
Water hazard class 2 (German Regulation) (Self-assessment): hazardous for water  
Do not allow product to reach ground water, water course or sewage system.  
Danger to drinking water if even small quantities leak into the ground.  
12.5 Results of PBT and vPvB assessment  
PBT: Not applicable.  
vPvB: Not applicable.  
12.6 Other adverse effects No further relevant information available.

SECTION 13: Disposal considerations  
13.1 Waste treatment methods  
Recommendation  
Must not be disposed together with household garbage. Do not allow product to reach sewage system.  
Uncleaned packaging:  
Recommendation: Disposal must be made according to official regulations.
### SECTION 14: Transport information

<table>
<thead>
<tr>
<th>14.1 UN-Number</th>
<th>UN1133</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.2 UN proper shipping name</td>
<td></td>
</tr>
<tr>
<td>- ADR</td>
<td>ADHESIVES, ENVIRONMENTALLY HAZARDOUS ADHESIVES (Solvent naphtha (petroleum), hydrotreated light naphthenic; Hydrocarbons C6-C7 isoalkanes cyclics &lt; 5% n-hexane (REACH Registered Name), HEXANES), MARINE POLLUTANT</td>
</tr>
<tr>
<td>- IMDG</td>
<td>ADHESIVES</td>
</tr>
<tr>
<td>- IATA</td>
<td>ADHESIVES</td>
</tr>
<tr>
<td>14.3 Transport hazard class(es)</td>
<td></td>
</tr>
<tr>
<td>- ADR, IMDG</td>
<td>3 Flammable liquids.</td>
</tr>
<tr>
<td>- IATA</td>
<td>3 Flammable liquids.</td>
</tr>
<tr>
<td>14.4 Packing group</td>
<td></td>
</tr>
<tr>
<td>- ADR, IMDG, IATA</td>
<td>III</td>
</tr>
<tr>
<td>14.5 Environmental hazards:</td>
<td>Product contains environmentally hazardous substances: Butylated hydroxytoluene, Solvent naphtha (petroleum), hydrotreated light naphthenic; Hydrocarbons C6-C7 isoalkanes cyclics &lt; 5% n-hexane (REACH Registered Name)</td>
</tr>
<tr>
<td>- Marine pollutant:</td>
<td>Yes</td>
</tr>
<tr>
<td>- Special marking (ADR):</td>
<td>Symbol (fish and tree)</td>
</tr>
<tr>
<td>14.6 Special precautions for user</td>
<td>Warning: Flammable liquids.</td>
</tr>
<tr>
<td>- Danger code (Kemler):</td>
<td>33</td>
</tr>
<tr>
<td>- EMS Number:</td>
<td>F-E,S-D</td>
</tr>
<tr>
<td>- Stowage Category</td>
<td>A</td>
</tr>
<tr>
<td>14.7 Transport in bulk according to Annex II of Marpol and the IBC Code</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Transport/Additional information:</td>
<td></td>
</tr>
<tr>
<td>- ADR</td>
<td></td>
</tr>
<tr>
<td>- Limited quantities (LQ)</td>
<td>5L</td>
</tr>
<tr>
<td>- Excepted quantities (EQ)</td>
<td>Code: E1</td>
</tr>
<tr>
<td>- Maximum net quantity per inner packaging: 30 ml</td>
<td></td>
</tr>
<tr>
<td>- Maximum net quantity per outer packaging: 1000 ml</td>
<td></td>
</tr>
<tr>
<td>- Transport category</td>
<td>3</td>
</tr>
<tr>
<td>- Tunnel restriction code</td>
<td>D/E</td>
</tr>
</tbody>
</table>
Trade name: K-FLEX K-467

(Contd. of page 9)

- **IMDG**
  - Limited quantities (LQ) 5L
  - Excepted quantities (EQ) Code: E1
  Maximum net quantity per inner packaging: 30 ml
  Maximum net quantity per outer packaging: 1000 ml

- **UN "Model Regulation":**
  UN 1133 ADHESIVES, 3, III, ENVIRONMENTALLY HAZARDOUS

* SECTION 15: Regulatory information

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
  - Directive 2012/18/EU
  - Named dangerous substances - ANNEX I None of the ingredients is listed.
  - Seveso category
    - E2 Hazardous to the Aquatic Environment
    - P5c FLAMMABLE LIQUIDS
  - Qualifying quantity (tonnes) for the application of lower-tier requirements 200 t
  - Qualifying quantity (tonnes) for the application of upper-tier requirements 500 t
  - REGULATION (EC) No 1907/2006 ANNEX XVII Conditions of restriction: 3, 40

- **National regulations:**

- **Technical instructions (air):**

<table>
<thead>
<tr>
<th>Class</th>
<th>Share in %</th>
</tr>
</thead>
<tbody>
<tr>
<td>NK</td>
<td>80.9</td>
</tr>
</tbody>
</table>

- **Waterhazard class:** Water hazard class 2 (Self-assessment): hazardous for water.

- **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

* SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Relevant phrases**
  - H225 Highly flammable liquid and vapour.
  - H226 Flammable liquid and vapour.
  - H304 May be fatal if swallowed and enters airways.
  - H312 Harmful in contact with skin.
  - H315 Causes skin irritation.
  - H317 May cause an allergic skin reaction.
  - H319 Causes serious eye irritation.
  - H332 Harmful if inhaled.
  - H336 May cause drowsiness or dizziness.
  - H373 May cause damage to organs through prolonged or repeated exposure.
  - H411 Toxic to aquatic life with long lasting effects.

- **Department issuing SDS:** R&D Dept.

- **Abbreviations and acronyms:**
  - ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
  - IMDG: International Maritime Code for Dangerous Goods
  - IATA: International Air Transport Association
  - GHS: Globally Harmonised System of Classification and Labelling of Chemicals
  - EINECS: European Inventory of Existing Commercial Chemical Substances
  - ELINCS: European List of Notified Chemical Substances
  - CAS: Chemical Abstracts Service (division of the American Chemical Society)
<table>
<thead>
<tr>
<th>Trade name: K-FLEX K-467</th>
</tr>
</thead>
<tbody>
<tr>
<td>VOC: Volatile Organic Compounds (USA, EU)</td>
</tr>
<tr>
<td>DNEL: Derived No-Effect Level (REACH)</td>
</tr>
<tr>
<td>PNEC: Predicted No-Effect Concentration (REACH)</td>
</tr>
<tr>
<td>LC50: Lethal concentration, 50 percent</td>
</tr>
<tr>
<td>LD50: Lethal dose, 50 percent</td>
</tr>
<tr>
<td>PBT: Persistent, Bioaccumulative and Toxic</td>
</tr>
<tr>
<td>vPvB: very Persistent and very Bioaccumulative</td>
</tr>
<tr>
<td>Flam. Liq. 2: Flammable liquids – Category 2</td>
</tr>
<tr>
<td>Flam. Liq. 3: Flammable liquids – Category 3</td>
</tr>
<tr>
<td>Acute Tox. 4: Acute toxicity – Category 4</td>
</tr>
<tr>
<td>Skin Irrit. 2: Skin corrosion/irritation – Category 2</td>
</tr>
<tr>
<td>Eye Irrit. 2: Serious eye damage/eye irritation – Category 2</td>
</tr>
<tr>
<td>Skin Sens. 1: Skin sensitisation – Category 1</td>
</tr>
<tr>
<td>STOT SE 3: Specific target organ toxicity (single exposure) – Category 3</td>
</tr>
<tr>
<td>STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2</td>
</tr>
<tr>
<td>Asp. Tox. 1: Aspiration hazard – Category 1</td>
</tr>
<tr>
<td>Aquatic Chronic 2: Hazardous to the aquatic environment - long-term aquatic hazard – Category 2</td>
</tr>
</tbody>
</table>

* Data compared to the previous version altered.